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Jing Xiang

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 8/14/2008 have been fully considered but they are not persuasive. Applicant argues that Kitchin does not teach checking selected number of previously received packets and the packets differ for at least two quality of service levels. However, examiner disagrees. Kitchin teaches maintaining separate duplication cache for each of the different class of packets. This cache limits the packets to selected number of previously received packets since this cache is finite and has a maximum limit of how many packets can be stored in the cache.

### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 2, 3, 13, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kitchin (USPN 7,260,392).

**Regarding claim 2**, Kitchin teaches a method for determining whether to discard a received packet at a node [**Col. 3, lines 20-38**] the method including the steps of: comparing a sequence number associated with the received packet against sequence numbers associated with a selected number of previously received packets, wherein the received packet has a quality of service level associated therewith, the selected number of previously received packets are of the same quality of service level as the received packet and wherein the selected number of previously received packets examined in the step of comparing differs for at least two quality of service levels [**Col. 3, lines 20-28**]

**describe discarding packets if duplicate packets are received, Col. 4, lines 32-46**  
**describe maintaining separate duplication cache for each QoS and keeping track of sequence information for each class];** and discarding the received packet in the event of a match between any one of the sequence numbers associated with the selected number of previously received packets having the same quality of service level as the received packet and the sequence number associated with the received packet **[Col. 3, lines 20-28 describe discarding duplicate packets, Col. 4, lines 32-46**  
**describe reordering according to each class and maintaining separate duplication cache for each class].**

**Regarding claim 3,** Kitchin teaches forwarding the received packet for processing in the event that there is no match between any one of the sequence numbers associated with the selected number of previously received packets having the same quality of service as the received packet and the sequence number of the received packet **[Col. 4, lines 40-46].**

**Regarding claim 13,** Kitchin teaches an apparatus for discarding redundant packets received at a receiving node **[Col. 3, lines 20-38],** comprising: a sequence number buffer, for storing sequence numbers associated with packets received at the receiving node, wherein a packet is assigned a sequence number responsive to a quality of service level of the packet and a sequence number of a prior packet having the quality of service level of the packet **[Col. 3, lines 20-28 describe maintaining duplicate detection cache, Col. 4, lines 32-39 has sequence number of each class];** an anti-replay bitmask table, each entry associated with a different quality of

service level and storing the bitmask of sequence numbers of previously received packets to be compared in determining whether to discard a received packet, wherein a number of sequence numbers of previously received packets that are compared differs for at least two quality of service levels **[Col. 3, lines 20-28 describe discarding packets if duplicate packets are received, Col. 4, lines 32-46 describe maintaining separate duplication cache for each QoS and keeping track of sequence information for each class]**.

**Regarding claim 18**, Kitchin teaches an apparatus comprising: means for receiving a plurality of packets having an associated plurality of sequence numbers, wherein each one of the packets in the plurality of packets has a quality of service level associated therewith, and wherein there are at least two types of service levels **[Col. 3, lines 20-28 describe having sequence numbers, Col. 4, lines 32-46, the reference states delivering packets to another class indicates there are at least two service levels]**; means for comparing, for each received packet, a received sequence number of each received packet against a set of previously received sequence numbers, wherein the set of sequence numbers includes only sequence numbers of packets previously received within a window and having a quality of service level type corresponding to the quality of service level type of the received packet and wherein a number of previously received sequence number for each set differs for at least two quality of service levels **[Col. 3, lines 20-28 describe discarding packets if duplicate packets are received where packets are compared against the packets in a duplication cache, Col. 4, lines 32-46 describe maintaining separate duplication**

**cache for each QoS and keeping track of sequence information for each class];**  
and means for discarding the received packet in the event of a match between the received sequence number and any of the sequence numbers in the set of sequence numbers **[Col. 3, lines 20-28, discards packets if duplicate packets are received].**

***Claim Rejections - 35 USC § 103***

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitchin (USPN 7,260,392) in view of Nagarajan et al. (USPN 7,099,327, Herein as Nagarajan).

**Regarding claim 4,** Kitchin teaches a method as discussed in rejection of claim 2.

However, Kitchin does not teach forwarding the received packet for processing if the packet is received a predetermined time after the selected number of previously received packets.

Nagarajan teaches forwarding the received packet for processing if the packet is received a predetermined time after the selected number of previously received packets **[Col. 6, lines 35-46].**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to forward the received packets for processing after a selected number of previous packets are received since sequence numbers are allocated using a finite number of bits so they will be repeated after a maximum finite value therefore it must be decided after which sequence number should you stop processing them **[Col. 6, lines 32-35].**

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitchin (USPN 7,260,392) in view of Zdan (USPN 7,020,143).

**Regarding claim 5**, Kitchin teaches a method as discussed in rejection of claim 2.

However, Kitchin does not teach determining service level in response to a differentiated services codepoint (DSCP) associated with the packet.

Zdan teaches determining service level in response to a DSCP associated with the packet **[Col. 5, lines 46-57]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine service level in response to DSCP associated with the packet so that QoS can be implemented without the need for per-flow signaling and state maintenance in each traversed node **[Col. 5, lines 53-57]**.

6. Claim 7-9, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Kitchin (USPN 7,260,392) in view of Zdan (USPN 7,020,143).

**Regarding claims 7 and 14**, Kitchin teaches a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, Kitchin does not teach at least one of the service levels corresponds to an Expedited Forwarding (EP) per hop behavior.

Zdan teaches at least one of the service levels corresponds to an EP behavior **[Col. 5, lines 66-67 – Col. 6, line 1]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to an EP behavior since it's a currently defined standard PHB group **[Col. 5, lines 66-67 – Col. 6, line 1]**.

**Regarding claims 8 and 15**, Kitchin teaches a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, Kitchin does not teach at least one of the service levels corresponds to an Assured Forwarding (AF) per hop behavior.

Zdan teaches at least one of the service levels corresponds to an AF behavior **[Col. 5, lines 66-67 – Col. 6, line 1]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to an AF behavior since it's a currently defined standard PHB group **[Col. 5, lines 66-67 – Col. 6, line 1]**.

**Regarding claims 9 and 16**, Kitchin teaches a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, Kitchin does not teach at least one of the service levels corresponds to a Best Efforts (BE) per hop behavior.

Zdan teaches at least one of the service levels corresponds to a BE behavior **[Col. 5, lines 66-67 – Col. 6, line 1]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to a BE



behavior since it's a currently defined standard PHB group [**Col. 5, lines 66-67 – Col. 6, line 1**].

7. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kitchin (USPN 7,260,392) in view of Koodli et al. (USPN 7,000,120, Herein as Koodli).

**Regarding claim 17**, Kitchin teaches an apparatus as discussed in rejection of claim 13.

However, Kitchin does not teach the apparatus operates according to an IPsec protocol.

Koodli teaches that apparatus operates according to an IPsec protocol [**Col. 4, lines 24-26**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the apparatus that operates according to an IPsec protocol since IPsec provides various security services for traffic at IP layer [**Col. 1, lines 29-31**].

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrahas Patel whose telephone number is (571)270-1211. The examiner can normally be reached on Monday through Thursday 7:30 to 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/  
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